CLMPTO

FRF

11/06/01

Claims 1-14 cancel

15. A method of estimating an impulse response of an information transmission channel in a signal propagation environment and comprising:

estimating the impulse response based upon a useful number of coefficients of the impulse response, the useful number of coefficients being a function of the signal propagation environment.

16. The method of Claim 15 wherein estimating the impulse response comprises:

providing an initial estimate of the impulse response based upon a predetermined maximum number of the coefficients;

determining a time domain spreading parameter based upon the initial estimate;

using the time domain spreading parameter to determine the useful number of coefficients; and

providing a final estimate of the impulse response based upon the useful number of coefficients.

17. The method of Claim 16 wherein providing the final estimate comprises correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

18. The method of Claim 16 wherein using the time domain spreading parameter to determine the useful number of coefficients comprises comparing the time domain spreading parameter with a plurality of predetermined spreading parameter values each corresponding to a different time domain spreading of the transmission channel.

19. A method of estimating an impulse response of an information transmission channel in a signal propagation environment and comprising:

determining a useful number of coefficients of the impulse response as a function of the signal propagation environment based upon a time domain spreading parameter; and

estimating the impulse response based upon the useful number of coefficients.

20. The method of Claim 19 wherein determining the useful number of coefficients comprises comparing the time domain spreading parameter with a plurality of predetermined spreading parameter values each corresponding to a different time domain spreading of the transmission channel.

21. A device for estimating an impulse response of an information transmission channel in a signal propagation environment comprising:

a processing stage;

said processing stage comprising evaluation means for defining a useful number of coefficients of the impulse response as a function of the signal propagation environment and for estimating the impulse response based upon the useful number of coefficients.

22. The device of Claim 21 wherein said processing stage further comprises first estimating means for producing a first estimate of the impulse response of the transmission channel based upon a predetermined maximum number of the coefficients.

23. The device of Claim 22 wherein said evaluation means generate a time domain spreading parameter and determines the useful number of coefficients based thereon.

24. The device of Claim 23 wherein said processing stage further comprises second estimating means for deriving a

final estimate of the impulse response based upon the useful number of coefficients provided by said evaluation means.

25. The device of Claim 24 wherein said second estimating means comprise correction means for providing the final estimate by correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

26. The device of Claim 23 wherein said evaluation means comprise:

a memory having a plurality of predetermined spreading parameter values stored therein each corresponding to a respective time domain spreading of the transmission channel; and

a comparator for comparing the time domain spreading parameter with the predetermined spreading parameter values.

27. A device for estimating the impulse response of an information transmission channel in a signal propagation environment comprising:

an evaluator for determining a useful number of coefficients of the impulse response as a function of the signal propagation environment; and

estimation circuitry for estimating the impulse response based upon the useful number of coefficents.

28. The device of Claim 27 wherein said evaluator determines the useful number of coefficients of the impulse

response based upon a predetermined maximum number of the coefficients.

29. The device of Claim 28 wherein said evaluator generates a time domain spreading parameter and determines the useful number of coefficients based thereon.

30. The device of Claim 29 wherein said estimation circuitry further derives a final estimate of the impulse response based upon the useful number of coefficients.

31. The device of Claim 30 wherein said estimation circuitry derives the final estimate by correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

32. The device of Claim 27 further comprising a memory having a plurality of predetermined values of spreading parameters each corresponding to different time domain spreading of the transmission channel stored therein; and wherein said evaluator further comprises a comparator for comparing the time domain spreading parameter with the predetermined values.

33. A cellular telephone comprising:

an antenna;

a receiver for receiving cellular signals via said antenna from a base station over an information transmission channel in a signal propagating environment; and

a processing stage for estimating an impulse response of the information transmission channel the signal propagation environment and comprising evaluation means for defining a useful number of coefficients of the impulse response as a function of the signal propagation environment, and for estimating the impulse response based upon the useful number of coefficients.

34. The cellular telephone of Claim 33 wherein said processing stage further comprises first estimating means for producing a first estimate of the impulse response of the transmission channel based upon a predetermined maximum number of the coefficients.

35. The cellular telephone of Claim 34 wherein said evaluation means generate a time domain spreading parameter and determines the useful number of coefficients based thereon.

36. The cellular telephone of Claim 35 wherein said processing stage further comprises second estimating means for deriving a final estimate of the impulse response based upon the useful number of coefficients provided by said evaluation means.

37. The cellular telephone of Claim 36 wherein said second estimating means comprise correction means for correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

38. A computer-readable medium having computer-executable instructions for estimating an impulse response of an information transmission channel in a signal propagation environment by performing a step comprising:

estimating the impulse response based upon a useful number of coefficients of the impulse response, the useful number of coefficients being a function of the signal propagation environment.

39. The computer-readable medium of Claim 38 wherein estimating the impulse response comprises:

providing an initial estimate of the impulse response based upon a predetermined maximum number of the coefficients;

determining a time domain spreading parameter based upon the initial estimate;

using the time domain spreading parameter to determine the useful number of coefficients; and

providing a final estimate of the impulse response based upon the useful number of coefficients.

40. The computer-readable medium of Claim 39 wherein providing the final estimate comprises correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

41. The computer-readable medium of Claim 39 wherein using the time domain spreading parameter to determine the useful number of coefficients comprises comparing the time domain spreading parameter with a plurality of predetermined

spreading parameter values each corresponding to a different time domain spreading of the transmission channel.